

Taxonomy of *Micromyrtus ciliata* (Myrtaceae) and allied species including three new species of *Micromyrtus* from eastern Australia and lectotypification of *M. minutiflora*

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Abstract

Green, J. W. Taxonomy of *Micromyrtus ciliata* (Myrtaceae) and allied species including three new species of *Micromyrtus* from eastern Australia and lectotypification of *M. minutiflora*. Nuytsia 4(3): 317-331 (1983). *Micromyrtus ciliata* is redefined in consequence of the segregation from it of two new species, *M. sessilis* and *M. striata*. A third new species, *M. blakelyi*, belonging to the same group, is also described. All four species are mapped and illustrated. *Micromyrtus minutiflora*, based on mixed material, is lectotypified.

A. Taxonomy of *Micromyrtus ciliata* and allied species

Introduction

The stimulus for the present paper came from the need to provide a name for an undescribed species of *Micromyrtus* occurring in the region of the forthcoming flora of SE Queensland. The opportunity was taken to treat at the same time the whole *M. ciliata* group of four species, comprising *M. ciliata*, two segregates from it (*M. sessilis* and *M. striata*), and an undescribed species (*M. blakelyi*) based on material in herb. NSW which had been described and put aside by W. F. Blakely many years ago but never published.

Since the present group of species is being treated somewhat out of context, it may be useful to indicate its place in the classification of the genus.

Following the removal of three species to *Malleostemon* (Green 1983), *Micromyrtus* now contains some 19 published species, as well as 3 not yet described. Bentham, who described first the genus (in Bentham and Hooker 1865) and later (1867) seven species, established in his key to the species what have come to be regarded as the chief diagnostic characters: stamen number; ovule number; and shape of calyx-tube (here called floral tube). Bentham suggested no infrageneric classification, nor has one been proposed since, despite the description of many additional species.

On the basis of Bentham's characters, *Micromyrtus* may be divided informally into 5 sections, one of which contains all seven eastern species. Six of its member species exhibit the typical character syndrome of floral tube basally 5-ribbed; sepals and petals 5; leaf margin minutely ciliate; and ovules 2, 4 or 6. The seventh species, the hexamerous *M. hexamera* (Maiden et Betche) Maiden et Betche, differs from the numerical characters above but is obviously related on flower and leaf morphology (see Green 1980b, where the remarkable, parallel example of hexamery in a species of *Thryptomene* from the same area is also discussed).

Within the '*M. ciliata* section', the '*M. ciliata* group' contains 4 species united by ovule number 4, in contrast to the other 3 species which have ovule numbers 2 (*M. minutiflora* Benth.), 6 (*M. leptocalyx* (F. Muell.) Benth.) or 8 or more (*M. hexamera*).

Study methods and specialised terminology are as explained by Green (1979, 1980a and 1980b). The study was restricted to material in Australian herbaria, and descriptions drawn up from a small representative selection. Specimens cited are arranged geographically within States or Territories, the selection attempting to reflect morphological variation, habitats, history and representation in herbaria. The species are arranged in systematic order, beginning with *M. ciliata* and ending with the most distantly-related species in the group. The term bracteole is used for the structures subtending the flower. With the removal of all multi-flowered species to *Malleostemon* (Green 1983), my interpretation of the solitary flower of *Thryptomene*, *Micromyrtus* and *Corynanthera* as a 1-flowered inflorescence, and my reserving the term bract for structures subtending a flower-cluster, might now seem unnecessary. Nonetheless, I have retained the usage for the sake of consistency among the four genera. A character known for only one or two species is usually omitted from the descriptions of species for which it is unknown.

Key to the species

1. Leaf keel glabrous; margins of sepals minutely denticulate or entire; stamens and style about 1 mm long
 2. Ribs of floral tube one adaxial and four twisted and contiguous in two lateral pairs flanking the compressed base of the tube. Wide-spread in central and SE N.S.W., W Vic. and SE S.A. 1. *M. ciliata*
 2. Ribs of floral tube 5-8, not twisted and basally contiguous, though sometimes branching under the sepals; tube not markedly compressed
 3. Ribs of floral tube 5, some obtusely branching near the calyx; disc straight. Tablelands of SE Qld and N N.S.W. 2. *M. sessilis*
 3. Ribs of floral tube up to 8, branching acutely near the base; disc oblique. W plains of N.S.W. 3. *M. striata*
1. Leaf keel ciliate; margins of sepals fimbriate; stamens and style mostly above 2 mm long. Hawkesbury, N.S.W. 4. *M. blakelyi*

Species descriptions

1. ***Micromyrtus ciliata*** (Sm.) Druce, Rep. Bot. Exch. Cl. & Soc. Br. Isles 1916, Suppl. 2 636 (1917). *Type*: Port Jackson, 1795, *White* (holo: LINN, examined B. R. Maslin; photo: PERTH). (Figures 1-15)

Imbricaria ciliata Sm., Trans. Linn. Soc. 3: 259 (1797).

Escallonia ciliata (Sm.) Schult. in Roem. et Schult., Syst. 5: 329-330 (1819).

Stereoxylon ciliata (Sm.) Poir., Dict. Suppl. 5: 247 (1847).

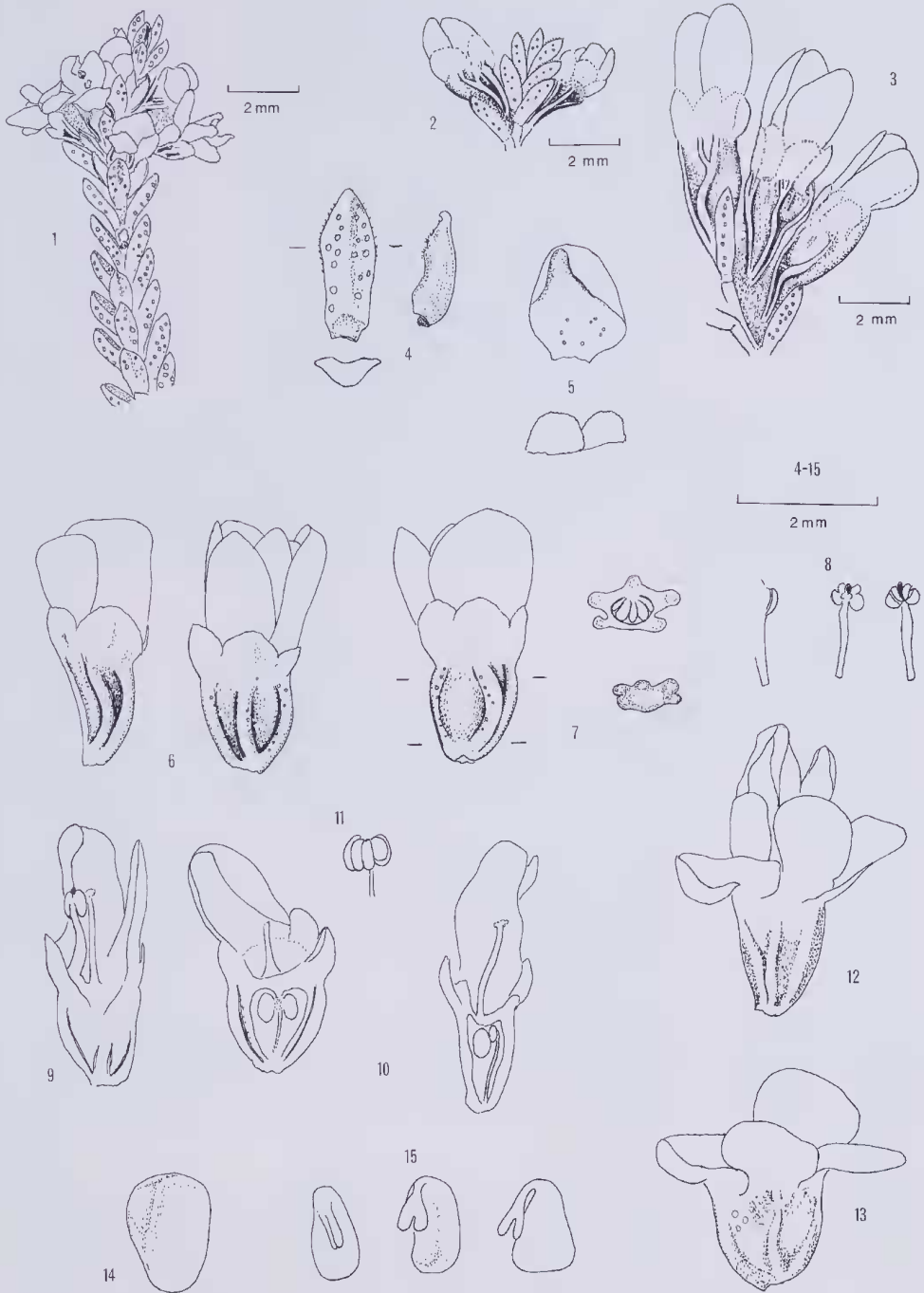
Thryptomene ciliata (Sm.) F. Muell. ex Woolls, Pl. Neighb. Sydney 23 (1882).

Baeckea microphylla Sieb. ex Spreng., Syst. Veg. Cur. Post., 149 (1827). *Type*: Nov. Holl. *Sieber* 282 (holo: n.v.; iso: MEL 71255, 71264).

Micromyrtus microphylla (Sieb. ex Spreng.) Benth., Fl. Austral. 3: 65 (1867), nom. illeg.

Baeckea plicata F. Muell., Fragm. Phyt. Austral. 1: 30 (1858). *Type*: Grampians, F. Mueller (holo: MEL 71233).

Thryptomene plicata (F. Muell.) F. Muell., Fragm. Phyt. Austral. 4: 63-64 (1864).



Figures 1-15. *Micromyrtus ciliata*. 1—Upper flowering branch. 2—Flowers, typical form. 3—Flowers, A.C.T. form. 4—Leaf showing median TS (left); bracteole (right). 5—Petal (upper) and sepals (lower). 6—Flower, lateral (left), adaxial (right). 7—Flower, oblique radial view; TS floral tube, upper and lower. 8—Stamens. 9-10—Flower, dissected to show stamens, style and ovules. 11—Ovules and part of stylar vein. 12-13—Fruiting perianths. 14—Seed. 15—Embryos.

1, 5-11 from R. Coveney, W of Hornsby, 11 Sep. 1966; 2 from Whaite 1600; 3 from Darbyshire 40; 4 from Anon, Port Jackson (AD); 12-13 from Reader, 25 Oct. 1896; 14-15 from Krachenbuehl 1258.

Shrub, spreading to erect, 0.3-1.2 m high. *Leaves* imbricate, opposite, decussate, obovate to oblong or linear, concavo-convex, somewhat keeled below, 1.5-4 mm long, 0.4-1 mm broad, subsessile, dotted with several oil glands, glabrous except the margins minutely ciliate or rarely entirely glabrous. *Flowers* subsessile, solitary in the upper axils, forming loose to compact terminal heads; *bracteoles* subtending the flower 2, conduplicate, 1.5-2 mm long, mostly deciduous. *Floral tube* dorsiventrally compressed-obconical, especially near the base, 2-5 mm long; ribs 5, antesepalous, sometimes branching obtusely just below sepals, adaxial rib linear, lateral pairs twisted, the ribs of each pair becoming contiguous in the lower half, one pair to either side of the broad, convex, smooth, abaxial surface of the tube. *Sepals* 5, semiorbicular, 0.7-1 mm long, sometimes pink, margins minutely irregularly denticulate, fimbriate or entire. *Petals* 5, broadly elliptic, 1.7-4 mm long, 1-2 mm broad, white to pink. *Disc* deeply concave. *Stamens* 5, antepetalous, not exceeding the petals; *filaments* filiform, 1-1.3 mm long; *anthers* versatile, bisporangiate, bilocular, 0.3 mm long, stomia linear, subparallel; *connective gland* small, globular. *Style* 1.5 mm long, equalling or exceeding the sepals. *Ovules* 4 (very rarely 5), radially arranged about a small placenta attached to the styler vein near the summit of the ovary. *Fruit* somewhat enlarged from the flower, sepals persistent, becoming enlarged, hardened and spreading. *Seeds* 1 or rarely 2, broadly ovoid-obloid, 1.5 x 1 mm, somewhat angular; *embryo* with a broadly clavate, somewhat angular hypocotyl, a narrow, curved neck and 2 small, linear cotyledons lying against the hypocotyl.

Selection of specimens examined. NEW SOUTH WALES: Gungal, near Merriwa, Sep. 1904, *J. L. Boorman* (NSW); Bumberry Mountain, near Parkes, 1947, *G. W. Althofer* (NSW); About 10 miles (16 km) S of Cowra, 24 Nov. 1945, *C. W. E. Moore* (CANB); Gosford, *Harris* and *Butler* (NSW); Port Jackson, 1838, *T. Siemssen* (MEL); South Head, Sydney, 3 Sep. 1910, *J. B. Cleland* (AD); Long Bay, 4 Oct. 1927, *A. Morris* (ADW); Springwood, 13 Sept. 1929, ex herb. *Rodway* 2945 (NSW); Jervis Bay, Sept. 1928, *Anon.* (NSW); c. 8 miles (12.9 km) SW of Nowra, *E. F. Constable* 1276A (NSW).

AUSTRALIAN CAPITAL TERRITORY: Along Gibraltar Creek, *R. Schodde* 3155 (AD, BRI, CANB, MEL, NSW); Mount Tennent, 2 Nov. 1952, *L. D. Pryor* (AD, CBG); Punchbowl Creek, *N. T. Burbidge* 6811 (CANB, NSW).

VICTORIA: c. 50 km NNW of Orbost, 24 Apr. 1957, *J. H. Willis* (MEL); 15 miles (24.1 km) NNE of Bendigo, *H. I. Aston* 432 (MEL); Wimmera, *Dallachy* (MEL): Grampians, *T. B. Muir* 2567 (MEL); Wyperfeld National Park, *B. G. Briggs* 2868 (NSW); Serviceton, 1887, *Turner* (MEL).

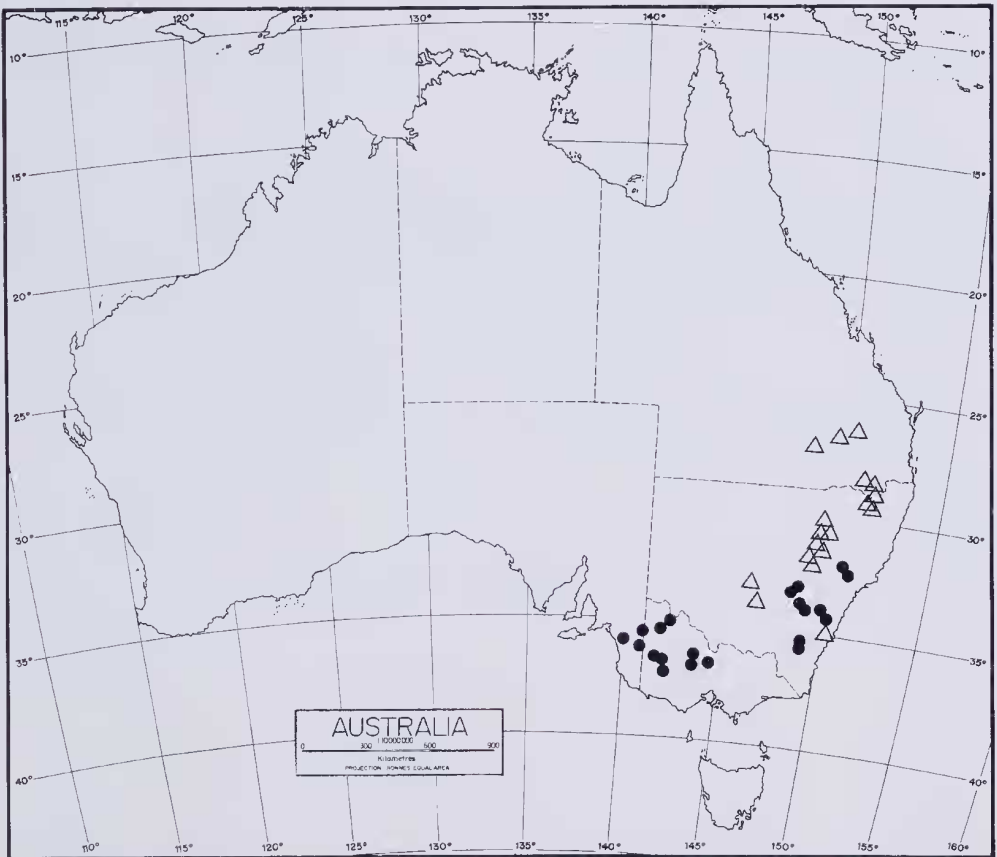
SOUTH AUSTRALIA: 40 miles (64.4 km) N of Bordertown, 15 miles (24.1 km) E of Bunn's Bore, 22 Oct. 1958 *G. Blackburn* (ADW); c. 97 km N of Bordertown, *P. G. Wilson* 2129 (AD); 4 miles (6.4 km) W of Murray Bridge, 9 Oct. 1953, *F. M. Hilton* (ADW).

Distribution and habitat. Distributed widely in two disjunct areas, one in central and south-eastern N.S.W. (including the A.C.T.) and the other in western Victoria and the south-east of S.A. (Map 1), *Micromyrtus ciliata* has been recorded from a wide variety of habitats, including rocky declivities (both tableland and coastal) and sand heaths. The scanty records of associated flora include *Angophora*, *Eucalyptus racemosa*, *E. haemastoma* and *Pomaderris*, in communities such as mallee, mallee scrub, mallee broombush, sclerophyll forest and low open heath. The altitudinal range is from sea level to 1 000 m.

Flowering and fruiting period. Flowering, March-April, July to November, chiefly September-October with a peak in October; fruiting, October-December.

Micromyrtus ciliata is here circumscribed on the character of the compressed floral tube and its unevenly-disposed ribs, four of which twist and become contiguous in two pairs below. This striking arrangement seems never to have been described, nor has it been adequately illustrated. The following new species are separated from *M. ciliata* on the basis of the ribs being much more evenly disposed and not becoming contiguous in pairs, as well as the tube being less markedly compressed below or not compressed.

Even after the removal of the above segregates, *M. ciliata* remains a very variable species. On some mountains, especially Mount Tennent, A.C.T., large-flowered populations are in marked contrast to the typical form from around Sydney; however, as the two are joined by a range of intermediates, I have been unable to delineate formal taxa. The flowers are recorded as pink in the bud and white at anthesis; many populations, however, show varying degrees of pinkness in petals and sometimes also sepals, some being deeply pigmented. So far, this variation has not been correlated with habitat. There may be a case for establishing infraspecific taxa based



Map 1. Distribution of *Micromyrtus ciliata* (closed circles) and *M. sessilis* (open triangles).

on habit: Willis (1973) refers to two distinct forms in Victoria—a sprawling, often procumbent, heavily-pigmented inhabitant of rocky places, and a stiffly-erect, white-flowered bush occurring on mallee sandhills. Clarification of the taxonomic nature of these forms will probably have to await a field study, as present collections and label data are not adequate for the purpose.

Conservation status. Probably not endangered, being common and widespread; recorded from at least one National Park.

2. *Micromyrtus sessilis* J. W. Green, sp. nov. (Figures 16-27)

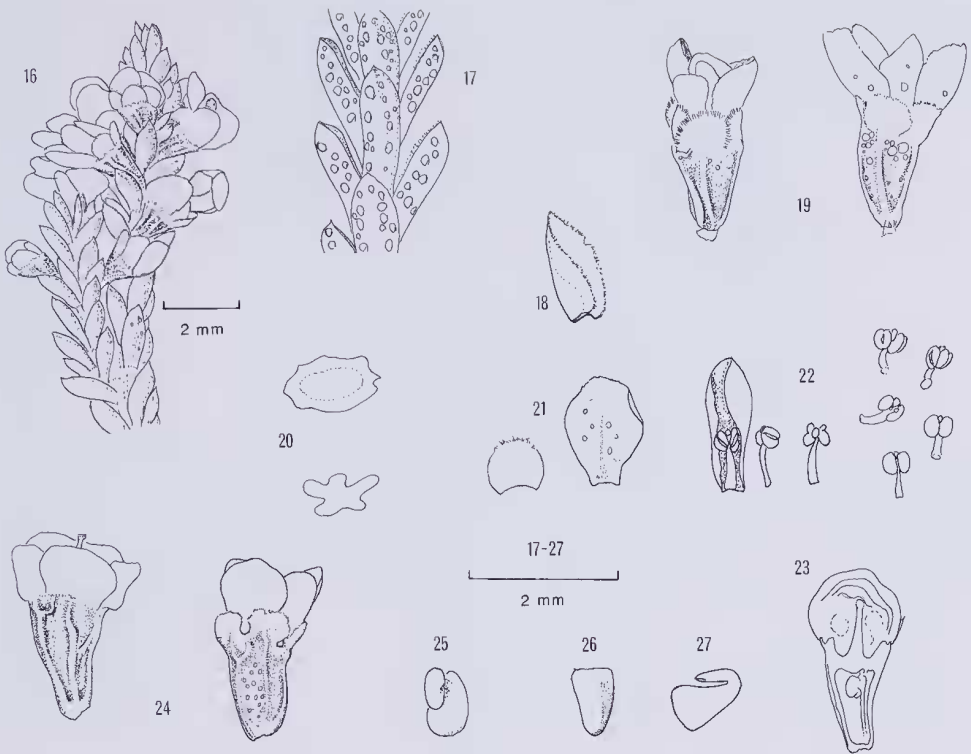
Micromyrtus minutiflora Benth., Fl. Austral. 3: 65 (1897), pro parte excl. lectotype, as to New England, *Stuart* (MEL 71351, 71258).

Frutex; folia linearia ad oblanceolata, 1.5-3 mm longa; *flores* solitarii, axillares, sessiles vel subsessiles; *tubus floris* obconicus ad anguste turbinatus, 5-costatus; costae aliquantum incongruae; *petala et sepala* 5; *stamina* 5, antisepala; *ovula* 4.

Typus: 2 km S of Miles, Queensland, 12 October 1977, *J. W. Green* 4675 (holo: BRI; iso: NSW, PERTH).

Shrub, usually dense, spreading, 0.6-1.5 m high, sometimes smaller or even prostrate. *Bark* deciduous in strips or flakes, brown to grey. *Leaves* usually imbricate, opposite, decussate, linear to oblanceolate, 1.5-3 mm long, about 0.5-0.8 mm broad and thick, sessile, concave above, keeled below near the apex otherwise rounded, dotted with several oil glands, glabrous except the margins minutely ciliate. *Flowers* sessile or subsessile, solitary in the upper axils, forming small compact heads to massive flowering regions; *bracteoles* subtending flower 2, about 1.5 mm long, deciduous. *Floral tube* obconical to narrow-turbinate, 1-1.4 mm long; ribs 5, somewhat irregularly disposed, rounded, longitudinal, sometimes branching obtusely below the sepals, not markedly contiguous in the lower half, often glandular; intercostal interstices usually smooth or sometimes glandular. *Sepals* 5, semiorbicular, 0.3-0.7 mm long, margins usually minutely denticulate. *Petals* 5, orbicular to elliptic, 0.7-1.5 mm long, 0.6-1 mm broad, white or pale pink, sometimes bearing several oil glands, margins entire. *Disc* shallow. *Stamens* 5, antepetalous, shorter than the petals; *filaments* filiform, 1 mm long; anthers versatile, bisporangiate, bilocular, 0.3 mm long, stoma subparallel; connective gland small, globular. *Style* about 1 mm long, exceeding the sepals. *Ovules* 4, radially arranged about a small placenta attached to the stylar vein near the summit of the ovary. *Fruit* scarcely enlarged, petals sometimes persistent. *Seed* 1, broadly compressed-clavate, somewhat angular, 1.5 x 0.7 mm, pale brown; *embryo* with a broadly clavate, somewhat angular hypocotyl, a narrow, curved neck and 2 small, linear cotyledons lying against the hypocotyl.

Selection of specimens examined. QUEENSLAND: 35 miles (56.3 km SW of Roma, *L. Pedley* 2411 (BRI); 6 miles (9.7 km) E of Yuleba, *S. L. Everist* 6139 (BRI, CANB); Wyberba, Bald Rock Creek, 6 miles (9.7 km) S of Stanthorpe, *L. Pedley* 1555 (BRI, CANB); Between 2 peaks of Mount Norman, about 5 miles (8 km) NE of Wallangarra, 6 Dec. 1970, *D. Hockings* (BRI).



Figures 16-27. *Micromyrtus sessilis*. 16—Upper flowering branch. 17—Leaves. 18—Bracteole. 19—Flowers, lateral and abaxial views. 20—Floral tube, TS, upper and lower. 21—Sepal (left) and petal (right). 22—Stamens, one with attached petal. 23—Longitudinal half flower, showing style and ovules. 24—Fruits. 25—Ovules, developing. 26—Seed. 27—Embryo.

16-17, 24 (left) from Jackson 2276; 18, 20, 22-23 from Green 4675; 19, 21, 25 from Everist 8122; 24 (right), 26-27 from Boorman, Wallangarra.

NEW SOUTH WALES: 55 miles (88.5 km) NW of Grafton on Gwydir Highway, Gibraltar Range, 13 Dec. 1966, *M. D. Tindale* (NSW); Torrington-Tungsten road, 15 miles (24.1 km) NW of Deepwater, 13 May 1961, *E. F. Constable* (NSW); Howell, Sep. 1905, *R. Hart* (NSW); 14 miles (22.5 km) S of Narrabri, 26 Aug. 1961, *M. E. Phillips* (BRI, CBG); Mount Exmouth, Warrumbungles, 26 May 1948, *E. F. Constable* (NSW); Dubbo-Gilgandra, 12-14 miles (19.3-22.5 km) N of Dubbo, *H. Salasoo* 3779 (NSW); Rankins Springs, Sep. 1964, *M. W. Browne* (NSW); Griffith district, *T. Vanden Brock* 676 (NT); Between Sassafras & Mount Effrema, 20 miles (32.1 km) SW of Nowra, ex herb *F. A. Rodway* 12427 (NSW).

Distribution and habitat. *Micromyrtus sessilis* occurs from around Miles in south-eastern Queensland to Griffith in south-central New South Wales, mainly on the Great Divide above 600 m elevation (Map 1). The few available records of associated vegetation include mallee, scrub, forest and open woodland, containing species of *Eucalyptus* (*E. crebra*, *E. sideroxylon* and *E. exserta*), *Acacia*, *Callitris* and *Melaleuca*. Rocky habitats are noted frequently on specimen labels, while soils vary from sand to clay, specifically solodized solonetz, sandy clay and red-brown sand over clay.

Flowering and fruiting period. Flowering, March, May, July-November, chiefly September-October; fruiting, January-February (N.S.W.), September-October, December (Qld.).

Micromyrtus sessilis is segregated from the closely-related *M. ciliata* from which it differs in the following characters: floral tube scarcely compressed; ribs of floral tube not twisted and contiguous near the base; oil glands often prominent on the tube just below the sepals; and distribution more northerly, principally SE Queensland and the New England tablelands of N.S.W.

As long ago as 1958, what is now *M. sessilis* was recognized as being an undescribed species by S. T. Blake (herb. BRI, in sched., Sep. 1958) when he discovered the mixed nature of Bentham's (1867) syntypes of *M. minutiflora* (see also discussion in section B, below, where *M. minutiflora* is lectotypified).

Conservation status. Not endangered owing to occurrence in mountainous areas relatively free from alienation.

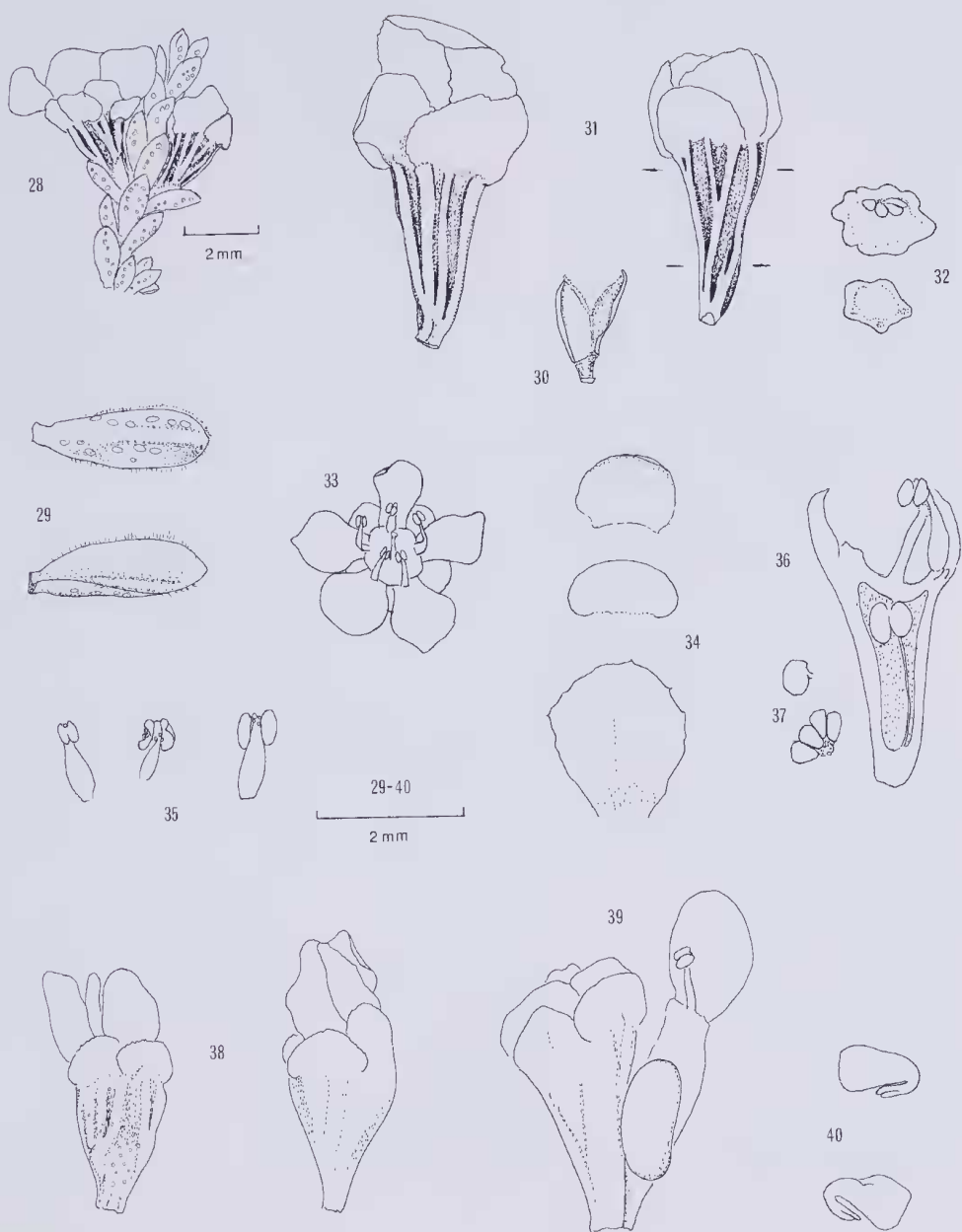
Etymology. The epithet refers to the sessile or subsessile flowers which distinguish the species from *M. leptocalyx* in SE Queensland where the two sometimes occur together.

3. *Micromyrtus striata* J. W. Green, sp. nov. (Figures 28-40)

Frutex; folia obovata, 1-2 mm longa; *flores* solitarii, axillares, subsessiles; *tubus floris* obconicus, usque ad 8-costatus, costae prope tubi basin ramosae; *sepala* et *petala* 5; *stamina* 5, antisejala; *ovula* 4.

Typus: 5.5 miles (8.8 km) S of Tottenham, New South Wales, 7 Sep. 1962, T. & S. Whaite 2525 (holo: NSW).

Shrub, erect to spreading or drooping, 1-1.2 m high. *Leaves* sessile or nearly so, imbricate, opposite, decussate, obovate, concave or grooved above, rounded to somewhat keeled below, 1-2.5 (rarely to 6) mm long, 0.5-1 mm broad, dotted with several to many oil glands, glabrous except the margins minutely ciliate. *Flowers* subsessile, solitary in the upper axils, forming more or less terminal clusters of 5-10; *bracteoles* subtending the flower 2, membranous, 0.6-1 mm long, deciduous. *Floral tube* obconical, 1-2.5 mm long, somewhat oblique at the disc; *ribs* up to 8, when dry prominently standing out from the tube, smoothly rounded, acutely dividing from 5 quite near the base, more or less evenly disposed around the tube. *Sepals* 5, petaloid, semiorbicular, sometimes minutely auriculate, 0.6-0.8 mm long, 0.7-1.2 mm broad. *Petals* 5, broadly elliptic, 1.4-2 mm long, 1.3-1.6 mm broad, white. *Disc* concave, sometimes deeply so. *Stamens* 5, antepetalous, slightly exceeding the sepals; *filaments* filiform or clavate, 1 mm long, *anthers* versatile, globular, 0.3-0.4 mm diameter, bisporangiate, bilocular, stoma subparallel; *connective gland* small, solitary or accompanied by 2 or 3 lateral glands. *Style* about 1 mm long, exceeding the sepals. *Ovules* 4, radially arranged about a small placenta attached to the stylar vein near the summit of the ovary; inner ovary wall loosely fibrous. *Fruit* scarcely enlarged from the flower, sometimes swollen eccentrically, the ribs less prominent than in the flower. *Seed* usually 1, rarely 2 or 3, somewhat reniform, 1.5 x 0.7 mm; *embryo* with a thick, clavate hypocotyl, narrow, curved neck and 2 small, linear cotyledons.

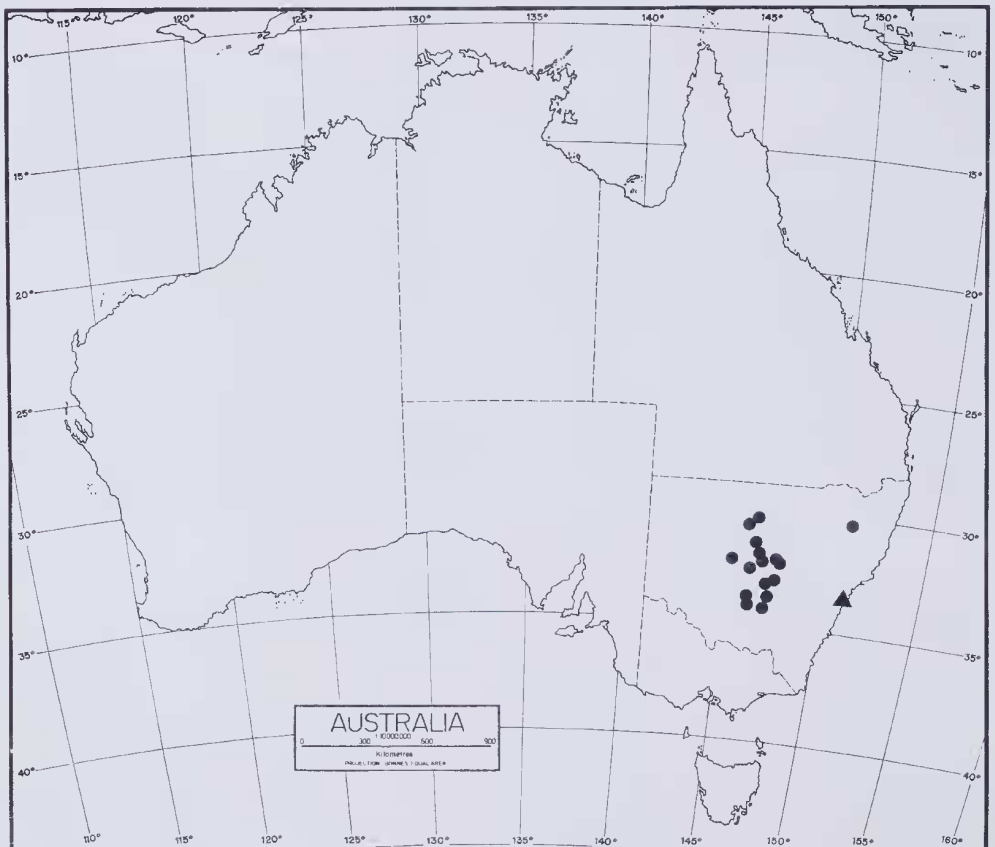


Figures 28-40. *Micromyrtus striata*. 28—Upper flowering branch. 29—Leaves, dorsal and lateral views. 30—Bracteoles. 31—Flowers. 32—Flower, TS floral tube, upper and lower. 33—Flower, from above. 34—Sepals (upper, middle) and petal (right). 35—Stamens. 36—Longitudinal half-flower showing stamen, style and ovules. 37—Ovules, lateral and vertical. 38—Fruits. 39—Fruit, dissected to show seed. 40—Embryos.

28-34 (upper and middle) from *Moore* 5273; 34 (lower)-37 from *Whaite* 2525; 38 (left) from *Abraham*, Cobar, Oct. 1911; 38 (right)-39 from *Constable* 4547; 40 from *Boorman*, S of Cargellico.

Selection of specimens examined. NEW SOUTH WALES: c. 25 miles (40.2 km) SE of Louth, C.W.E. Moore 4189 (NSW); Between Bogan and Darling, 1877, L. Morton (MEL); Cobar, 1886, J. M. Curran (MEL); 35 miles (56.3 km) S of Bourke, E. F. Constable 4547 (BRI, NSW); SW of Dandaloo, 21 Jun. 1900, R. H. Cambage (NSW); 48.5 miles (78 km) S of Cobar, C. W. E. Moore 4493 (CANB, NSW); 13 miles (20.9 km) SE of Hillston, 21 Mar. 1959, E. F. Constable (NSW); Lachlan River, 1872, L. Morton (MEL); Bulbodney S.F., near Condobolin, 8 Oct. 1932, V. H. Hadley (NSW); Wyalong, R. H. Cambage 122 (NSW); Griffith, Jul. 1928, W. F. Blakely & D. W. C. Shiress (NSW); 1 mile (1.6 km) W of Kamarah, Sep. 1966, S. Cadwell (NSW); Lake Cudgellico [now Cargellico], 2 Oct. 1906, J. L. Boorman (NSW); Mount Lindsay, Nandewar Range, 5 Nov. 1909, R. H. Cambage (NSW).

Distribution and habitat. *Micromyrtus striata* is widespread in central New South Wales, from Louth to Griffith, with an outlier in the Nandewar Range (Map 2). It has been recorded in mallee, heathland and woodland, the only recorded associated species being *Eucalyptus populnea*. The substrate may include red sand, red earth, red clay loam or skeletal soil, sometimes poorly-drained.



Map 2. Distribution of *Micromyrtus striata* (closed circles) and *M. blakelyi* (closed triangle).

Flowering and fruiting period. Flowering, May, July–November, peaking September; fruiting, January, March, September–November.

Formerly included in *M. ciliata*, the new species is quite distinct in the floral tube which has up to 8 evenly-disposed ribs and is relatively symmetrically obconical. A variant (included above) with unusually long leaves, 4–6 mm long, has been recorded from Gloucester Buckets and Manna Mountain.

Conservation status. Not known to be endangered though the species needs monitoring owing to its common occurrence in habitats favoured for agriculture.

Etymology. The epithet refers to the prominent ribs on the floral tube.

4. *Micromyrtus blakelyi* J. W. Green, sp. nov. (Figures 41–53)

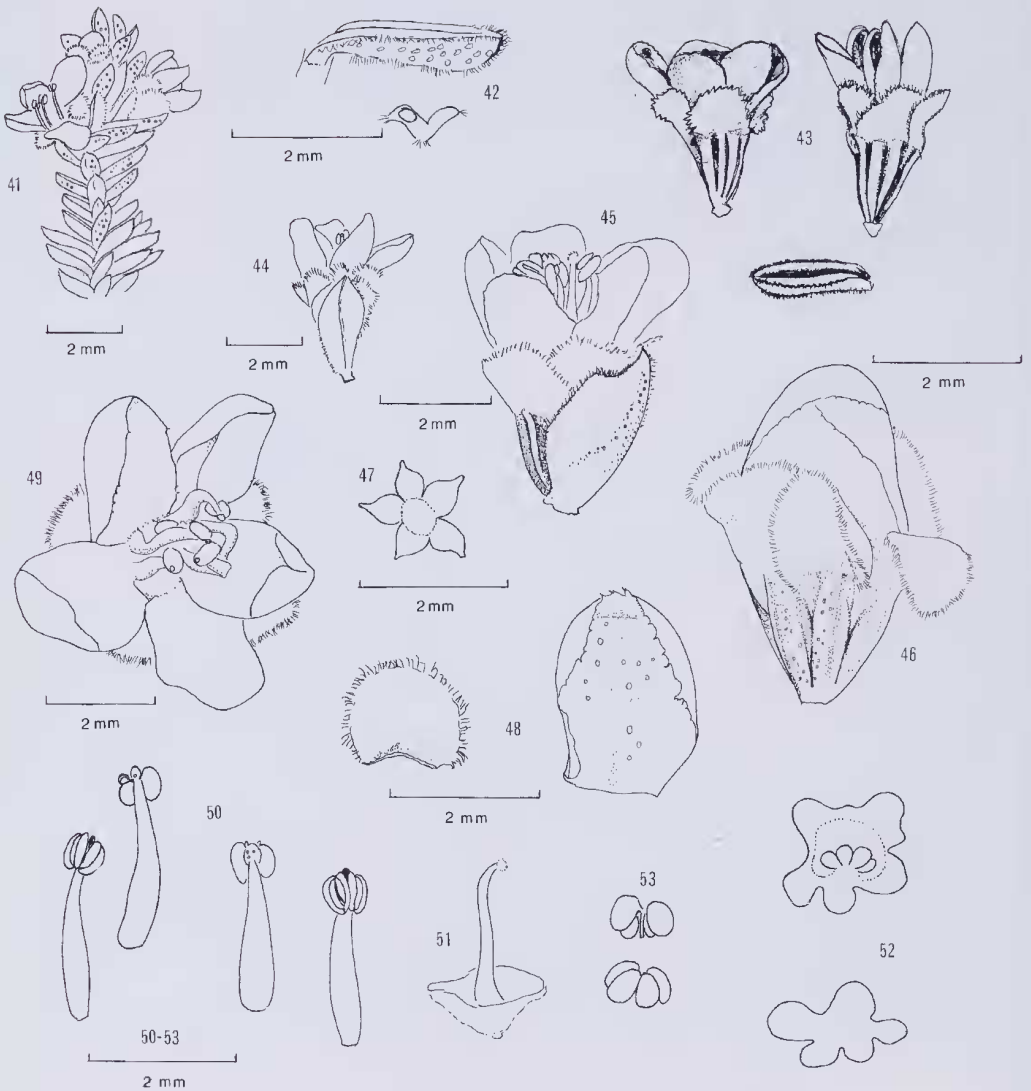
Frutex; folia linearia, 2.5–4.5 mm longa, carina ciliata; *bracteolae* ciliatae; *flores* solitarii, axillares, subsessiles; *tubus floris* turbinatus, basi 5-costatus, apice usque ad 10-costatus; *sepala* et *petala* 5; *calycis* margo ciliatus; *stamina* 5, antisepala, *ovula* 4.

Typus: Between Hornsby and Gosford, New South Wales, 23 September 1958, *E. Gauba* s.n. (holo: NSW 136205).

Shrub, low, cushion-like, 0.3–0.6 m high, forming dense masses; *young branches* and *leaves* densely woolly-tomentose. *Leaves* sessile or nearly so, imbricate, opposite, decussate, linear, deeply keeled, almost conduplicate, channelled above, 2.5–4.5 mm long, 1 mm broad, margins and keel ciliate, prominently so with silvery hairs when young, liberally dotted with oil glands. *Flowers* subsessile, solitary in the upper axils, forming loose, subterminal heads or elongated clusters; *bracteoles* 2, broad, keeled, rose-coloured, ciliate on margins and keel, 2.5–3 mm long, almost as long as the leaves and floral tube. *Floral tube* obconical, 2 mm long, regularly 5-cleft near the base, shining, reddish-brown; *ribs* 5 near the base, up to 8 above, acute or striated, branching acutely. *Sepals* 5, orbicular, 1.5–2 mm long, scarious, prominently fringed with long hairs. *Petals* 5, broadly elliptic, concave, 2–3 mm long, colour unrecorded, enclosing and exceeding the stamens; *margins* entire or sparsely denticulate or ciliate. *Disc* concave. *Stamens* 5, antepetalous, far exceeding the sepals and almost as long as the petals. *Filaments* filiform, 1.5–2 mm long; *anthers* 0.4 mm long, bisporangiate, bilocular, stoma subparallel. *Style* 2.5 mm long, exceeding sepals but not petals. *Ovules* 4, radially arranged about a small placenta attached to the stylar vein near the summit of the ovary. No fruits found.

Specimens examined. NEW SOUTH WALES: Hawkesbury to Cowan, 26 Jan 1918, *W. F. Blakely* (NSW); Hawkesbury River, old road above the convicts' bridge, 7 Oct. 1918, *W. F. Blakely* (NSW); Hawkesbury, about 2 miles (3.2 km) from station on old road, 24 Aug. 1919, *W. F. Blakely* (NSW); Hawkesbury River, Sep. 1925, *W. F. Blakely* (NSW); Canoe Grounds, 16 Oct. 1929, *W. F. Blakely* & *D. W. Shiress* (NSW).

Distribution and habitat. *Micromyrtus blakelyi* is very localised, having been recorded from very few localities, all near Hawkesbury (Map 2). The only indication of habitat is a manuscript note by Blakely in herb. NSW referring to his collection made in 1918 and that he made with Shiress in 1929: 'In both places it grows in the crevices of flat rocks.'



Figures 41-53. *Micromyrtus blakelyi*. 41—Upper flowering branch. 42—Leaf, lateral and TS. 43—Flowers and leaf, after Blakely (unpub.). 44-45—Bracteole and flower. 46—Flower, bracteoles removed. 47, 52—Floral tube, TS, upper and lower. 48—Sepal (left) and petal (right). 49—Flower, from above. 50—Stamens. 51—Style with attached disc. 53—Ovules.

41-42, 46-48, 50-53 from Gauba, Hornsby-Gosford, 23 Sep. 1958 (Type); remainder from Blakely, Hawkesbury River, 7 Oct. 1918.

Flowering and fruiting period. Flowering, August to October. Fruiting, unknown.

Micromyrtus blakelyi is distinguished from the remainder of the *M. ciliata* group by the indumentum of leaf keel, bracteole keel and sepal margin, as well as by the long stamens and style and cushion-like habit. W. F. Blakely, who made all except one of the collections, prepared drawings and drew up a description (all in herb.

NSW), commenting on the similarity to what is now *M. ciliata* but noting differences 'in its cushion-like habit, more densely ciliate leaves, large flowers, large and more highly coloured bracts' and 'more intensely ciliate' floral characters. Blakely thought the ovule number was 5, the calyx tube being 'easily separated into five divisions each of which usually contains one ovule'. The tube is indeed unusually deeply furrowed between the basal 5 ribs, but the ovary is unilocular, with 4 ovules as in all the *M. ciliata* group.

Conservation status. In view of its localised occurrence, not far from a large city, and the paucity of collections, particularly recent ones, this species must be classed as rare, probably endangered and possibly extinct.

Etymology. The epithet commemorates the discoverer, W. F. Blakely (1875-1941), formerly of the Sydney Botanic Gardens and later the National Herbarium of New South Wales.

Discussion

The species *Micromyrtus ciliata*, as formerly delineated, covered a broad and heterogeneous assemblage of populations. Some progress has been made in delineating some of the more obvious taxa within this complex, such as *M. sessilis* and *M. striata*, largely by placing emphasis on the character of the ribbing of the floral tube. It is curious that the highly unusual tube of *M. ciliata* (sens. strict.) has not drawn comment previously, though I know from conversations that it has been observed. Nevertheless, *M. ciliata* remains quite variable, particularly in flower size, pigmentation and, according to Willis (1973), habit. Clarification of the variation pattern of *M. ciliata* may prove a fruitful topic for a biosystematic project, particularly for someone able to carry out detailed population studies in Victoria and the Australian Capital Territory.

The *Micromyrtus ciliata* section is not closely related to the four western sections. Only two sections, that containing *M. flaviflora* (F. Muell.) F. Muell. ex J. M. Black and *M. barbata* J. W. Green and one containing an undescribed species, have 5 stamens, but the floral tube is quite different. The remaining sections have 10 stamens and a narrow-cylindrical floral tube quite different from that of *M. ciliata*.

The conservation status of *M. blakelyi* is of particular interest: in view of the possibility that the species is on the verge of extinction, a special search should be mounted to try to locate, and possibly save the species. All of the other species of the group appear to be common and widespread, though they could be endangered if not represented in reserves. This would be worth documenting.

B. Lectotypification of *Micromyrtus minutiflora*

When S. T. Blake (herb. BRI, in sched., Sep. 1958) found that the syntypes of *M. minutiflora* Benth. represented two different taxa (one described here as *M. sessilis*) he wrote: "The specimens from Richmond do have two ovules and look rather different from ours. Stuart's New England ones agree with ours which must represent an undescribed sp." As the Stuart material is now allotted to *M. sessilis*, the remaining syntype, the Richmond collection by Wilhelmi, is proposed as the lectotype of *M. minutiflora*. This material agrees with Bentham's description in having ovules two, unlike Stuart's which agrees with *M. sessilis* and all other species of the *M. ciliata* group in having ovules four.

Micromyrtus minutiflora Benth., Fl. Austral. 3: 65 (1867). *Lectotype* (here designated): Near Richmond, November 1863, *C. Wilhelmi* s.n. (holo: MEL 71257).

Thryptomene plicata F. Muell. var. *minutiflora* F. Muell. ex Benth., loc. cit., nom. nud., pro. syn. sub *Micromyrtus minutiflora* Benth.

Thryptomene minutiflora (Benth.) F. Muell. ex Woolls, Pl. Neighb. Sydney 23 (1880).

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 Willis, J. H. (1973). 'A Handbook to Plants in Victoria' (Melbourne University Press: Carlton, Victoria.)

Index to collections seen

- Abraham*, Cobar (NSW7019) (3); *Ackland* 27, 53 (MEL) (1); *Alcock* 111 (AD) (1); *Alcock* 6031 (PERTH) (1); *Alcock*, N of Bangham (AD) (1); *Althofer* 2 (NSW) (2); *Althofer* 47 (MEL) (2); *Althofer*, Bumbery Mt (NSW7025) (1); *Althofer*, Ganoo Forest 20 mi fr Dubbo (NSW7035) (2); *Anon.* 1484 (NSW) (1); *Anon.* 492 (NSW136207) (1); *Anon.*, Bet Mt Sassafras & Mt Ettrema (NSW136206) (2); *Anon.*, Denman (NSW136217) (2); *Anon.*, Forbes, (NSW136218) (1); *Anon.*, Jervis Bay (NSW136208) (1); *Anon.*, New England (NSW7003) (2); *Anon.*, Pt Jackson (AD, NSW6979) (1); *Anon.*, Willoughby (NSW6985) (1); *Anon.*, Wimmera (NSW7044) (1); *Ashby*, Grampians (AD) (1); *Ashby*, Grampians (ADW) (1); *Aston* 29 (MEL) (1); *Aston* 432 (MEL) (1); *Audas*, Mt Birchet (NSW7046) (1); *Barker*, 5 mi E Yuleba (BRI) (2); *Bauerlen?*, Cambewarra (MEL) (1); *Beaglehole* 19047 (AD) (1); *Beaglehole* 28835 (AD) (1); *Beckler*, L Korong (MEL) (1); *Blackburn*, 40 mi N Bordertown (ADW) (1); *Blake* 23787 (BRI) (2); *Blake* 2530 (BRI) (1); *Blake* 4665 (BRI) (2); *Blakely & Shiress*, Canoe Grounds (NSW7057) (4); *Blakely & Shiress*, Griffith (NSW7034) (3); *Blakely*, 2 mi W Wingello (NSW7014) (1); *Blakely*, Hawkesbury River (NSW7055, 7059) (4); *Blakely*, Hawkesbury River c. 2 mi fr station on old rd (NSW7058) (4); *Blakely*, Hawkesbury to Cowan (NSW7056) (4); *Blakely*, Hornsby (NSW6990) (1); *Bond*, 6 mi SE Underbool (MEL) (1); *Boorman*, Boppy Mt nr Cobar (NSW7020) (3); *Boorman*, Forked Mt Coonabarabran (NSW7028) (2); *Boorman*, Gungal nr Merriwa (NSW7037) (1); *Boorman*, Howell (NSW6997) (2); *Boorman*, Jennings (NSW7002) (2); *Boorman*, Kurnell (NSW6983) (1); *Boorman*, L Cudgellico (NSW7023) (3); *Boorman*, Stanthorpe (NSW7004) (2); *Boorman*, Torrington (NSW6994) (2); *Boorman*, Wallangarra (NSW17306) (2); *Boorman*, Wyalong (NSW7016) (3); *Boorman*, nr Mt Hope (NSW7017) (3); *Brant*, Dimboola (NSW136224) (1); *Brass & White* 6 (BRI) (2); *Briggs* 2868 (NSW) (1); *Briggs*, 5 mi NW Bordertown (NSW136236) (1); *Briggs*, Warrumbungle ra Beloungery Split (NSW34354) (2); *Briggs*, c. 8.5 mi NW Kulnura (NSW136213) (1); *Browne*, Rankins Springs (NSW136232) (2); *Brymer*, Hopetoun (NSW7043) (1); *Burbidge* 6790 (CANB, NSW) (1); *Burbidge* 6811 (CANB, NSW) (1); *Cadwell*, 1 mi W Kamarah (NSW136221) (3); *Cabbage* 122 (NSW) (3); *Cabbage* 2379 (NSW) (3); *Cabbage* 423 (NSW) (3); *Cabbage*, Bindook Yerranderie (CANB) (1); *Cabbage*, Torrington (NSW6998) (2); *Cabbage*, Wyalong (CANB) (3); *Cabbage*, Wybong, Denman (NSW7038) (2); *Cabbage*, Yerranderie (NSW7015) (1); *Camfield*, Kogarah (NSW6977) (1); *Camfield*, Maroubra Bay (NSW6987) (1); *Camfield*, Springwood (NSW7009) (1); *Cheel*, Engadine (NSW6992) (1); *Cheel*, Long Bay (NSW6982) (1); *Cheel*, Parkes dist (NSW7036) (1); *Cheel*, Randwick (NSW6984) (1);

Cheel, Rose Bay (NSW6974); *Chippendale & Constable*, Goonoo SF Dubbo-Mendooran (NSW17478) (2); *Cleland*, Pilliga scrub (NSW7031) (2); *Cleland*, South Head Sydney (AD) (1); *Cleland*, Sydney (AD) (1); *Clemans*, Ballandean (BRI) (2); *Cogger*, Nymagee (NSW136230) (3); *Constable* 1276A (NSW) (1); *Constable* 4547 (BRI, NSW) (3); *Constable*, 10 mi NE Goolgowi (NSW78443) (3); *Constable*, 13 mi SE Hillston (NSW48660) (3); *Constable*, Mt Exmouth Warrumbungles (NSW17307) (2); *Constable*, Torrington-Tungsten road (NSW56113) (2); *Corrick* 6354 (AD, PERTH) (1); *Coveney*, W of Hornsby (NSW136214) (1); *Coveney*, Norton's Basin (NSW136215, PERTH) (1); *Cunningham & Milthorpe* 2725 (NSW) (3); *Cunningham & Milthorpe* 2897 (NSW) (3); *Cunningham & Milthorpe* 888 (NSW) (1); *Curran*, Cobar (MEL) (3); *Dallachy*, Wimmera (MEL) (1); *Dalton* 21 (MEL) (1); *Darbyshire* 40 (CANB, NSW) (1); *Davis*, Wimmera (MEL) (1); *Deane*, Peats Road (NSW6993) (1); *Doggrell* 167 (BRI) (2); *Doing*, N Griffith (CANB) (3); *Everist* 6139 (BRI, CANB) (2); *Everist* 8i22 (BRI) (2); *Field Nat Cl*, Nhill (MEL) (1); *Fletcher*, Como (NSW6973, 6980) (1); *Fletcher*, Manly (NSW6991) (1); *Fletcher*, Oatley (NSW6972) (1); *Fletcher*, Springwood (NSW7006, 7008, 7011, 7012, 7013) (1); *Forsyth & Hamilton*, Badgerys Crossing to Nowra (NSW6971) (1); *Forsyth*, Bet Dubbo & Gilgandra (NSW7022) (2); *Forsyth*, Warrumbungle ra (MEL, NSW7027, 7032) (2); *Fraser*, French's Forest (NSW s.n.) (1); *French*, NW L Albacutya (MEL) (1); *French*, Wimmera (CANB) (1); *Fuller*, Mulgoa (CANB) (1); *Garden*, Yerranderie (NSW136222) (1); *Gardner* 61 (BRI) (2); *Gauba*, Bet Hornsby & Gosford (NSW136205) (4); *Gauba*, nr Ouyen (NT) (1); *Gittins* 2804 (NSW) (2); *Green*, J. W. 4675 (PERTH) (2); *Green*, R. R. 15, 21 (NSW) (3); *Hadley*, Bulbodney SF 24 nr Condobolin (NSW7024) (3); *Hadley*, Condobolin (NSW136219) (3); *Haegi* 1336 (AD) (3); *Haegi* 1385 (AD) (2); *Hamilton*, Linden (NSW7010) (1); *Hamilton*, Long Bay (NSW6989) (1); *Harris & Butler*, Gosford (NSW6988) (1); *Hart*, Howell (NSW6996) (2); *Henshall*, 3 mi N Tempy (NT) (1); *Henshall*, 4 mi N Tempy (NSW136227) (1); *Henshall*, Mt Stapylton (MEL, NT) (1); *Henshall*, c. 8-9 mi W Halls Gap (NSW136225) (1); *Henshall*, nr Kiata NP (NSW136227) (1); *Hilton*, 4 mi W Murray Bridge (ADW) (1); *Hockings & Cockburn*, Amiens (BRI) (2); *Hockings*, Wyberba (BRI) (2); *Hockings*, c. 5 mi NE Wallangarra (BRI) (2); *Holdsworth* 15 (MEL) (1); *Holland*, Wyperfield (CANB) (1); *Hunt* 992 (AD) (1); *Ising*, Bendigo (AD) (1); *Ising*, Custon (AD) (1); *Jackson* 2276 (AD, PERTH) (2); *Jackson* 3555 (AD, PERTH) (1); *Jephcott* 50 (MEL) (1); *Johnson* 2444 & Everist (BRI) (2); *Johnson* 286 (NSW) (1); *Johnson*, Worondi rivulet to Gungal ck (NSW136212) (1); *Jones* 4095 (BRI, CANB) (2); *Jones*, Stanthorpe (BRI CANB) (2); *Jorda*, Pilliga scrub (AD) (2); *Kenny*, Mosman (BRI) (1); *Kleinschmidt* 120 (BRI) (2); *Kraehenbuehl* 1258 (AD) (1); *Lewis*, Shuttleton nr Cobar (NSW7018) (3); *Luehmann*, Swan Hill (MEL) (1); *Lynch*, Tungsten via Deepwater (NSW7001) (2); *Macnicol*, Cowan (CANB) (1); *Macpherson*, Stanthorpe (BRI) (2); *Maiden & Boorman*, Howell (NSW6995) (2); *Maiden*, Box Pt to Barbers Ck (NSW7007) (1); *Maiden*, Gloucester Buckets (NSW6975) (3); *Maiden*, Harvey ra (NSW7026) (3); *Maiden*, nr Como (NSW6976) (1); *Makin*, Columboola (BRI) (2); *McBarron* 12393 (NSW) (1); *McGee*, Beechwood dist (NSW136228) (1); *McKie*, Guyra (NSW7005) (2); *McNutt*, Bismuth via Deepwater (NSW7000) (2); *Melvaine*, La Perouse (NSW136209) (1); *Menzel*, S.A. (NSW7047) (1); *Mitchell*, Manna Mt c. 40 mi N Wyalong (NSW136237) (3); *Moore* 2900 (CANB, NSW) (1); *Moore* 3898 (CANB, NSW) (3); *Moore* 4189 (NSW) (3); *Moore* 4493 (CANB, NSW) (3); *Moore* 5273 (CANB) (3); *Moore* 5686 (CANB) (3); *Moore* 6036 (CANB) (3); *Moore* M91 (CANB) (1); *Morris*, Long B (ADW) (1); *Morris*, Wedderburn (ADW) (1); *Morton*, Bet Bogan & Darling (MEL) (3); *Morton*, Lachlan r (MEL) (3); *Mossman* 16 (BRI) (1); *Mueller*, Austral Felix (CANB) (1); *Muir* 2567 (MEL) (1); *Muir* 2648 (AD, MEL) (1); *Muir* 890 (MEL) (1); *Muir* 910 (MEL) (1); *Muir*, Wail (MEL) (1); *Murray*, Combidaban ck E of Yuleba (BRI) (2); *Newman*, Roto to Matakana (NSW136231) (2); *Nielson* 9 (BRI) (2); *Olsen*, Wollemi Ck (NSW136216) (1); *Paterson*, Warrumbungles (NSW136220) (2); *Pedley* 1555 (BRI, CANB) (2); *Pedley* 2411 (BRI) (2); *Phillips* 152 (NT) (2); *Phillips*, 14 mi S Narrabri (BRI) (2); *Phillips*, 3 mi S Torrington (AD) (2); *Phillips*, 3 mi fr Torrington tow Tent Hill (BRI) (2); *Phillips*, 3-4 mi fr Wedderburn tow Inglewood (NT) (1); *Phillips*, Approaching Warracknabeal (CBG039788, NSW s.n.) (1); *Phillips*, Betw Inglewood & Wedderburn (BRI) (1); *Phillips*, Flat Rock Grampians (BRI) (1); *Phillips*, Near Tarnagulla (AD) (1); *Phillips*, Pilliga scrub (AD) (2); *Priest* 10620 (NSW) (1); *Pryor*, Mt Tennent (AD) (1); *Pullen* 2417, 2418 (CANB, NSW) (1); *Reader*, "Hilly Mallee country" (MEL) (1); *Rodway* 492 (NSW) (1); *Rodway* 605 (HO) (1); *Rodway* 606 (HO) (1); *Rowan*, Pt Jackson (MEL) (1); *Rowlands*, Warracknabeal (MEL) (1); *Rupp*, Mulgoa (NSW6978) (1); *Salasoo* 3779 (NSW) (2); *Schodde* 3155 (AD, BRI, CANB, MEL, NSW) (1); *Sharrad* 1136 (AD) (1); *Shea* S62 (BRI) (2); *Sieber* 282 (MEL) (1); *Siemssen*, Pt Jackson (MEL) (1); *Stafford*, Merriwa (NSW7039) (1); *Stephenson*, Middle Harbour (NSW6981) (1); *Stevenson*, Miles (BRI) (2); *Stuart*, New England (MEL) (2); *Sullivan*, Mt Cole (MEL) (1); *Swain*, Pilliga forest (NSW7029) (2); *Symon* 10919 (ADW) (1); *Thorne* 24998 (BRI) (1); *Tindale*, 55 mi NW Grafton Gibraltar ra (NSW84088) (2); *Tucker*, Lachlan r (MEL) (3); *Turner*, Serviceton (MEL) (1); *Vanden Broek* 676 (NT) (2); *W* —, Wedderburn dist (NSW7049) (1); *Walpole*, Wallangarra (BRI) (2); *Walter*, Grampians (BRI) (1); *Walter*, Grampians (CANB) (1); *Webb*, Upper Kangarooie (CANB) (1); *West* 2239 (AD) (1); *White* 1042 (NSW) (2); *White* 1496 (NSW) (1); *White* 1590 (NSW) (1); *White* 1600 (NSW) (1); *White* 2307 (NSW) (3); *White* 2525 (NSW) (3); *White* 2728 (NSW) (3); *Williamson*, Ballarat (NSW7045) (1); *Willis*, SW summit Manna Mt nr W Wyalong (MEL) (3); *Willis*, Snowy R gorge E Butcher's Ridge (MEL) (1); *Wilson* 2027 (AD) (1); *Wilson* 2129 (AD) (1); *Wrigley*, 11 mi fr Halls Gap tow Horsham (BRI) (1); *Yapp* 3 (PERTH) (1).